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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,686	12/12/2003	Young Hwa Kim	H49.12-0013	1211
27367	7590	06/30/2006		EXAMINER
WESTMAN CHAMPLIN & KELLY, P.A. SUITE 1400 900 SECOND AVENUE SOUTH MINNEAPOLIS, MN 55402-3319			GOFMAN, ANNA	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,686	KIM ET AL.	
	Examiner Anna Gofman	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 April 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-11, 13, 15-18, 20, 24-36 and 39-46 is/are pending in the application.
 - 4a) Of the above claim(s) 5, 13, 24, 25 and 45 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4, 6-11, 15-18, 56-36, 39-44 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/19/04; 3/17/04.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Election/Restrictions

1. Applicant's election without traverse of claims 1-4, 6-11, 15-18, 56-36, 39-44 and 46 in the reply filed on November 04, 2005 is acknowledged. Claims 5, 13, 24-25 and 45 have been withdrawn from consideration.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-11, 15-18, 56-36, 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patchett (WO 93/21492) in view of Harpell (US 5,196,252).

Patchett discloses a sheet material suitable for use in body armor comprising a flexible layer and a layer of discreet plates (pg.2 lines 1-6). Patchett teaches that the plates may be made out of metal or polymeric resin (pg.4 lines 24-32) and the plates may be identical to one another (Figure 4). The plates are in a repeating pattern (Figure 1). Patchett teaches that the degree of flexibility is determined by adjusting the separation between adjacent plates (col.2 lines 20-34) but is silent about the gap width to be between 5 to 10 mm. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to optimize the gap width, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Patchett further teaches that the plates can be overlapping and non-overlapping (Figures 6A and 6B). The material can be a multi-layer

arrangement made having three flexible layers and three layers of rigid plates (Figures 8A and 8B). Patchett further teaches that the flexible layer may be a laminate comprising different materials (pg.7 lines 9-11). Therefore, there can be two flexible substrates which meets the limitation of claim 26, which requires that a compressible material be laminated to the flexible substrate. Patchett teaches that the flexible layer may be woven or nonwoven textile material so long as it is gas permeable (pg.5 lines 10-16). Patchett teaches that the woven material can be a loosely-woven aramid textile (pg.12 line 13) or a porous sheet-plastics material (pg.5 lines 12-13). This meets the limitation of claim 20 since aramid is synonymous with Kevlar fibers. Further, the plates can be made out of glass fibers, ceramic or a polymeric resin (pg.5 lines 1-5). Patchett does not teach that the polymeric resin can be epoxy. Harpell is drawn to ballistic resistant materials. Harpell teaches a multi-layered fiber-containing article having a plurality of non-metallic plates affixed to the surface of the article (col.3 lines 7-11). The plates can be epoxy resin (col. 15 lines 18-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use epoxy resin as the polymeric resin on the rigid plates in the invention of Patchett motivated to provide a hard and sturdy surface to the plates. The invention of Harpell would necessarily increase the heat resistance of the flexible substrate since it is a ballistic resistant material. Further, Patchett does not explicitly teach the claimed tensile strength of the polymeric resin, but it is reasonable to presume that tensile strength is inherently greater than 100 kgf/cm². Support for said presumption is found in the use of like materials (i.e. rigid plates comprising flexible substrate layers), which would result in the

claimed property. The burden is upon the Applicant to prove otherwise. In addition, the presently claimed property would obviously have been present once the claimed product is provided. Further, the plurality of the plates would necessarily enhance the abrasion resistance of the flexible substrate since it is a body armor used to be resistant in knife blade penetration. Although Patchett does not explicitly teach the claimed abrasion resistance, is reasonable to presume that resistance is inherently between 12 to 30. Support for said presumption is found in the use of like materials (i.e. rigid plates comprising flexible substrate layers), which would result in the claimed property. The burden is upon the Applicant to prove otherwise. In addition, the presently claimed property would obviously have been present once the claimed product is provided.

Patchett teaches that the plates, at one point, may lay like an obtuse angle relative to the flexible substrate (pg.10 lines 29-30), but does not teach that the plates are shaped like a polygon. Harpell teaches that the plates may be in the shape of triangles and hexagons (col.2 lines 54-55). The diameter, thus, would necessarily be in the range of 20 to 80 mm since it is a ballistic resistant material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use triangles or hexagons as the shape of the plates in the invention of Patchett, motivated to provide a more cost-efficient material while still providing penetration resistance.

Patchett is silent about the plate thickness. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the desired thickness through the process of routine experimentation in order to arrive at values which offered the optimum penetration resistance in the invention of Patchett.

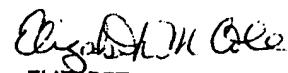
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Gofman whose telephone number is (571) 272-7419. The examiner can normally be reached on Mon.-Fri. 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anna Gofman
Examiner
Art Unit 1771



ELIZABETH M. COLE
PRIMARY EXAMINER

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